

WE CLAIM:

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1. An apparatus for providing weather information onboard an aircraft, comprising:
 - a processor unit which processes weather information after it is received onboard the aircraft from a ground-based source; and
 - a graphical user interface which provides a graphical presentation of the weather information to a user onboard the aircraft, and which includes one or more user-selectable options for graphically displaying at least one of convection information, turbulence information, icing information, weather satellite information, SIGMET information, significant weather prognosis information, and winds aloft information.
 2. The apparatus of claim 1, wherein the graphical user interface further includes a user-selectable option that allows the user to request specific weather information for transmission from the ground-based source to the aircraft.
 3. The apparatus of claim 1, wherein the graphical user interface further includes a user-selectable option that allows the user to select what weather information is automatically transmitted from the ground-based source.
 4. The apparatus of claim 1, wherein the graphical user interface further includes a user-selectable option for displaying the weather information in cross-sectional view along a route of the aircraft.
 5. The apparatus of claim 1, wherein the graphical user interface allows the user to view multiple types of weather data simultaneously.
 6. An apparatus for providing weather information onboard an aircraft, comprising:
 - a processor unit which processes weather information after it is received onboard the aircraft from a ground-based source; and

a graphical user interface which provides a plan view of the weather information and position of the aircraft to a user onboard the aircraft, and which includes a user-selectable option for centering the plan view on the position of the aircraft, even as the position of the aircraft changes.

7. The apparatus of claim 6, wherein the graphical user interface further includes a user-selectable option for orienting the plan view so that the aircraft track points upward.

8. An apparatus for providing weather information onboard an aircraft, comprising:

a processor unit which processes weather information, including three-dimensional weather information, after it is received onboard the aircraft from a ground-based source; and

a graphical user interface which provides a plan view of the weather information for a selected altitude to a user onboard the aircraft, and which includes a user-selectable option for changing the selected altitude.

9. A method of providing convection information to an aircraft, comprising the steps of:

collecting convection information at a data center;

transmitting the convection information from the data center to an aircraft; and

graphically displaying the convection information onboard the aircraft.

10. The method of claim 9, wherein the convection information that is graphically displayed onboard the aircraft includes information regarding convective activity observations.

11. The method of claim 9, wherein the convection information that is graphically displayed onboard the aircraft includes information regarding convective forecasts.

12. The method of claim 9, wherein the convection information is transmitted from the data center to the aircraft via a telephony communication link.

13. The method of claim 9, wherein the convection information is transmitted from the data center to the aircraft via a satellite communication link.

14. A method of providing turbulence information to an aircraft, comprising the steps of:

collecting turbulence information at a data center;

transmitting the turbulence information from the data center to an aircraft; and

graphically displaying the turbulence information onboard the aircraft.

15. The method of claim 14, wherein the turbulence information that is graphically displayed onboard the aircraft includes information regarding turbulence observations.

16. The method of claim 14, wherein the turbulence information that is graphically displayed onboard the aircraft includes information regarding turbulence forecasts.

17. The method of claim 14, wherein the turbulence information is transmitted from the data center to the aircraft via a telephony communication link.

18. The method of claim 14, wherein the turbulence information is transmitted from the data center to the aircraft via a satellite communication link.

19. A method of providing icing information to an aircraft, comprising the steps of:

collecting icing information at a data center;

transmitting the icing information from the data center to an aircraft; and

graphically displaying the icing information onboard the aircraft.

20. The method of claim 19, wherein the icing information that is graphically displayed onboard the aircraft includes information regarding icing observations.

21. The method of claim 19, wherein the icing information that is graphically displayed onboard the aircraft includes information regarding icing forecasts.

22. The method of claim 19, wherein the icing information is transmitted from the data center to the aircraft via a telephony communication link.

23. The method of claim 19, wherein the icing information is transmitted from the data center to the aircraft via a satellite communication link.

24. A method of providing weather satellite information to an aircraft, comprising the steps of:

collecting weather satellite information at a data center;

transmitting the weather satellite information from the data center to an aircraft; and

graphically displaying the weather satellite information onboard the aircraft.

25. The method of claim 24, wherein the weather satellite information that is graphically displayed onboard the aircraft is altitude based.

26. The method of claim 24, wherein the weather satellite information is transmitted from the data center to the aircraft via a telephony communication link.

27. The method of claim 24, wherein the weather satellite information is transmitted from the data center to the aircraft via a satellite communication link.

28. A method of providing SIGMET information to an aircraft, comprising the steps of:

collecting SIGMET information at a data center;

transmitting the SIGMET information from the data center to an aircraft; and

graphically displaying the SIGMET information onboard the aircraft.

29. The method of claim 28, wherein the SIGMET information is transmitted from the data center to the aircraft via a telephony communication link.

30. The method of claim 28, wherein the SIGMET information is transmitted from the data center to the aircraft via a satellite communication link.

31. The method of claim 28, wherein the SIGMET information is graphically displayed in the form of geometric shapes representing areas affected by SIGMETs.

32. A method of providing significant weather prognosis information to an aircraft, comprising the steps of:

collecting significant weather prognosis information at a data center;

transmitting the significant weather prognosis information from the data center to an aircraft; and

graphically displaying the significant weather prognosis information onboard the aircraft.

33. The method of claim 32, wherein the significant weather prognosis information is transmitted from the data center to the aircraft via a telephony communication link.

34. The method of claim 32, wherein the significant weather prognosis information is transmitted from the data center to the aircraft via a satellite communication link.

Sub A91
35. A method of providing winds aloft information to an aircraft, comprising the steps of:

collecting winds aloft information at a data center;

transmitting the winds aloft information from the data center to an aircraft; and

graphically displaying the winds aloft information onboard the aircraft.

36. The method of claim 35, wherein the winds aloft information that is graphically displayed onboard the aircraft includes information regarding winds aloft observations.

37. The method of claim 35, wherein the winds aloft information that is graphically displayed onboard the aircraft includes information regarding winds aloft forecasts.

38. The method of claim 35, wherein the winds aloft information is transmitted from the data center to the aircraft via a telephony communication link.

39. The method of claim 35, wherein the winds aloft information is transmitted from the data center to the aircraft via a satellite communication link.